Vermont Forest Health

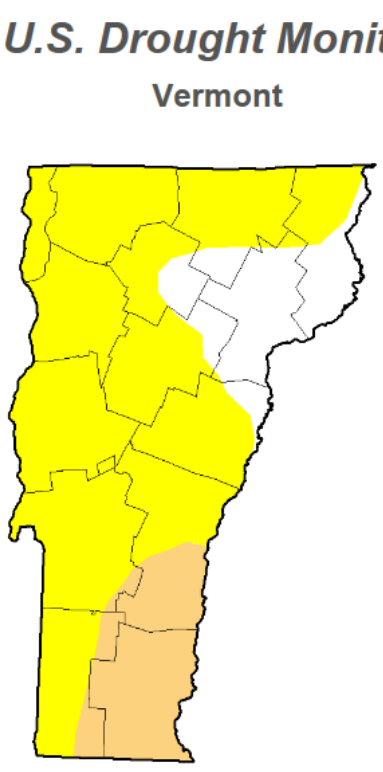
Insect and Disease Observations—July 2016

Department of Forests, Parks & Recreation
July 2016 vtforest.com

How Dry Was July?

Precipitation was below normal for most of the state for the last 30 days, continuing the dry trend that has been in place through 2016. As a result, drought/abnormally dry conditions remain in place for much of the state. Storms during the month, mostly in northern Vermont, improved conditions in areas in white on US Drought Monitor map. Windham and most of Windsor Counties remain in moderate drought and the rest of the state was abnormally dry through the month.

Impacts of drought are starting to show including:



July 26, 2016
(Released Thursday July 28, 2016)
Valid 8 a.m. EDT

Statistics type: Traditional Percent Area Export table:

Week	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current 2016-07-26	15.40	84.60	14.77	0.00	0.00	0.00
Last Week 2016-07-19	4.34	95.66	14.77	0.00	0.00	0.00
3 Months Ago 2016-04-26	100.00	0.00	0.00	0.00	0.00	0.00
Start of Calendar Year 2015-12-29	31.63	68.37	0.00	0.00	0.00	0.00
Start of Water Year 2015-09-29	33.80	66.20	0.00	0.00	0.00	0.00
One Year Ago 2015-07-28	100.00	0.00	0.00	0.00	0.00	0.00

Estimated Population in Drought Areas: 80,255 View More Statistics

Intensity:
D0 (Abnormally Dry) D2 (Severe Drought) D4 (Exceptional Drought)
D1 (Moderate Drought) D3 (Extreme Drought)

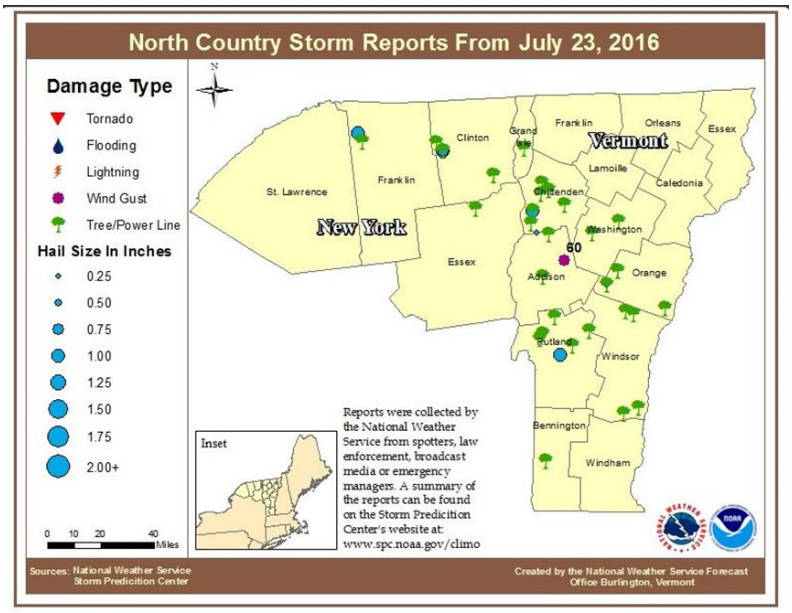
The Drought Monitor focuses on broad-scale conditions. Local conditions may vary. See accompanying text summary for forecast statements.

- Below normal and much below normal stream flows on all major Vermont rivers.
- The Lake Champlain water level continues to be below normal, as it has been since mid-April. As of July 31, 2016, the lake level at the King Street ferry dock was 94.67'. The average is 95.43' and the minimum 93.83'. Of interest, on July 31, 1999 (another drought year) the lake level was 94.84'!
- In southeastern VT where moderate drought is in place, lawns are starting to brown, and crops are growing slowly. With drought conditions, there is also a greater risk for ground fires which burn roots, humus and other underground vegetation. These fires are difficult and time-consuming to extinguish.
- Conditions are more severe in other states in the region, especially MA, CT, southern NH and NY, which all have water restrictions in place, reduced crop yields and high fire danger from severe drought. (Click here for Drought Impacts and Outlook in the Northeast.)

July also saw some hot temperatures. Burlington reached 90° or greater 5 times in July (average is 3). That makes 10 times so far in 2016 where temps at Burlington climbed to 90°+ (5/year is normal). Much of the rest of the state felt the heat as well but, overall, temperatures averaged only slightly above normal for July.

As is typical of July, severe storms popped up bringing some relief from the abnormally dry/drought conditions for parts of the state. A series of severe hit-or-miss storms caused varying degrees of damage in some areas. Periods of hot and humid weather preceded severe storms providing relief from the heat as well for a few days before the sequence would repeat itself.

July 4 was dry for the first time in 5 years but stormy weather followed soon after. From July 13-18, conditions were hot and humid, with bouts of scattered severe thunderstorms and heavy rains in some locations. Heavy rain caused street flooding in Lyndonville on July 15, and on July 18, scattered locations in northern Vermont witnessed damaging winds, hail, downed trees, power outages and isolated heavy rain.



On Saturday, July 23, strong storms and damaging winds blew through much of New England and the Northeast, leaving thousands without power. Sadly, a man from Hubbardton was killed by a falling tree. Residents of Bethel, Randolph, Royalton, Sharon, Strafford, Thetford and Tunbridge remained in the dark through Sunday night. According to he National Weather Service, wind speeds reached 69 MPH on Mt. Mansfield and 54 MPH on Diamond Island in Kingsland Bay. Brookfield, Springfield airport, and Thetford reached 40, 37, and 32 MPH respectively. A few hail reports were received as well, the largest being about 1" in diameter."

On July 31, a slow moving non-severe rain storm started in southern Vermont, continuing on August 1 for the rest of the state. By August 3, between .1 and 2" fell across the state with southern Vermont getting the most. This should relieve the drought conditions at least in the short term.

Symptoms of drought are showing up during our annual statewide **Aerial Survey** of forest health. With the survey 3/4 complete, we have seen areas of early color on sugar and red maple throughout the state. Trees affected by beech bark disease are also showing up statewide. As anticipated, we are seeing thin crowns on white pine, scattered fir mortality from balsam woolly adelgid, and areas of forest tent caterpillar defoliation in northern and central Vermont. On the plus side, thanks to dry conditions in spring 2016, we are not seeing anthracnose or other foliage diseases of hardwoods. More results from the aerial survey will be available in the August report.

Sugar Maple Insects

Our June update featured news about widespread defoliation by Forest Tent Caterpillar (FTC). Surveys made in July in North American Maple Project (NAMP) and leased sugarbush plots showed that 8 of the 36 monitoring plots had trees with moderate defoliation (22%) and 20 of the 36 monitoring plots had trees with light defoliation (55%) Areas defoliated by FTC are very slowly showing just slight green of new leaves.

Friendly flies, presumably responding to the food source provided by increased FTC caterpillar populations, have been reported from Cabot and Hyde Park, areas that experienced FTC defoliation last year. Friendly flies are appreciated for their work in reducing FTC populations, but earned their common name because of their tendency to land on people or animals in large numbers without biting. The natural enemies of FTC are well known and include 14 egg parasite species along with 52 flies and 61 wasps that parasitize larvae or pupae.

The thorax of the friendly fly is striped while the abdomen has a checkerboard pattern. Photo: NY DEC

Also during NAMP surveys, light to occasionally moderate pear thrips damage was observed on two sugarbushes in Braintree. Foliage that has been injured by pear thrips can appear ditorted, tattered or stunted, and may resemble damage by late frost or strong winds.

Other insects observed on sugar maple recently include considerable populations of maple leafcutter in some locations and lesser levels of maple trumpet skeletonizer.

Sugar maple will be the featured tree species at the Forestry Building at the 171st Vermont State Fair in Rutland which runs August 16-21.

Leaves damaged by pear thrips (left) may appear chlorotic and tattered, puckered or wrinkled, and may be smaller than normal. While many are acquainted with their damaging life stages, they may be less familiar with the adults of the maple leafcutter (center) and maple trumpet skeletonizer (right). Photos: M. Miller-Weeks, USDA Forest Service, T. Murray, BugGuide, J. Lee, Moth Photographers Group.

Jewelweed look-a-like is an early detection invasive

Jewelweed has started flowering, but keep a trained eye at the ready for pink or purple flowered "jewelweed". This is actually a non-native invasive plant called Himalayan balsam, or ornamental jewelweed (*Impatiens glandulifera*). Himalayan balsam is currently considered invasive in Maine and Connecticut and soon to be added to the watch list in Vermont, meaning the plant has invasive tendencies, but is not yet prohibited. This plant is considered an early detection invasive species in Vermont, as there are several accounts of this plant in the state, but it is not yet well established.

Flowers are of a purplish hue, large (1-1.5" long), with 5-10 flowers per stem. Photo: B. MacDonald, Bugwood.org

A member of the "touch-me-not" family (Balsaminaceae), Himalayan balsam is native to central Asia, and originally brought to Europe in the mid 1800's. It has frequently escaped cultivation, now being present throughout continental Europe, throughout the UK, in several Canadian provinces, New England and the West Coast. This plant produces 800-2,000+ seeds per individual, and the seeds are found in small pods that burst open when touched. High reproductive output, along with its significant height (6+ feet), allows it to quickly outcompete native plants.

Himalayan balsam prefers sites with wetter soils, and is commonly found in ditches, roadsides, railroad ROWs, yards and gardens, but also along streams, floodplain forests, meadows, fields, early successional forests, and edge communities.

The best time to identify this plant is during the summer and early fall, when it is flowering. To learn more, check out Michigan's Invasive Species Alert, Langley Environmental Partners Society, Go Botany, Maine Natural Areas Program, CIPWG, Invasive Plant Atlas of New England, and Washington State Noxious Weed Control Board.

Leaves are oblong or elliptical with sharply serrated edges, in pairs or whorled, with red midrib. Stems are red/purple and hollow. Annual plants grow up to 6+ feet in a year. Photos: R. Routledge, Bugwood.org, L.J. Mehrhoff, Bugwood.org.

Poison Parsnip Webworm

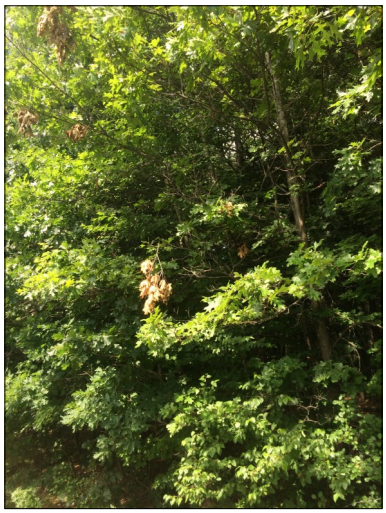
Speaking of invasive plants, we recently received photos from Panton of caterpillars feeding on Poison Parsnip. This is an introduced species, *Depressaria pastinacella,* commonly known as the Parsnip Webworm Moth (PWM). The landowner first noticed the caterpillars 4 -5 years ago while handmowing his meadows. He reported that he has since been mowing around any parsnip that had the PWM eating it, and that he can't easily find any parsnip without PWM.

The parsnip webworm feeds on poison parsnip, a plant rich in furanocoumarins, highly toxic chemicals whose toxicity is enhanced in the presence of ultraviolet radiation.

Photos: E. Markowski,, Panton, VT.

Oak Twig Pruner

Oak twig pruner was observed along I - 91 in Windham County. Larvae of this insect burrow down the center of twigs, leaving dead shoots hanging in the crown. The pruned twig eventually falls to the ground with the larva inside it.



Oak twig pruner larva in twig, frass-filled twig, and off-color, nearly-detached twigs. Photos: J. Esden

Dutch Elm Disease

Flagging of elm branches is common this year. Photo: R. Kelley

Widespread observations of brown, curled leaves on individual branches of elm trees have been reported recently. These are indications of the vascular wilt disease, Dutch Elm Disease (DED).

Researchers at the US Forest Service Northern Research Station in Madison, WI are working to identify American elms that are resistant to Dutch elm disease. Like all pathogens, DED can change over time and they want to be sure that the fungi they use for their screening procedures are representative of what exists on the landscape today. The researchers are asking that people send them samples of diseased elms from which they can collect fungi. For more information about or to participate in the study, contact Jessie Glaeser at 608-231-9215 or jglaeser@fs.fed.us

Emerald Ash Borer Biosurveillance

Survey and detection work for emerald ash borer (EAB) is once again taking a number of forms in Vermont. You may have seen the purple panel traps (over 500 have been deployed this year), green funnel traps, or girdled trap trees. EAB biosurveillance, using the wasp *Cerceris fumipennis* (commonly known as the smokey-winged beetle bandit) is well underway as well. To date, we have met our 50 beetle goal at 5 of our survey sites...with no EAB found so far Many volunteers have been tireless in their efforts, and we are grateful for their assistance.

Volunteers, shown here at several ballfield nest sites, have played a vital role in our EAB biosurveillance program. Photos: T. Hanson

FORESTS, PARKS & RECREATION VERMONT
AGENCY OF NATURAL RESOURCES

For more information, contact the Forest Biology Laboratory at 802-879-5687 or:

Windsor & Windham Counties.....	Springfield (802) 885-8845
Bennington & Rutland Counties.....	Rutland (802) 786-0060
Addison, Chittenden, Franklin & Grand Isle Counties.....	Essex Junction (802) 879-6565
Lamoille, Orange & Washington Counties.....	Barre (802) 476-0170
Caledonia, Orleans & Essex Counties.....	St. Johnsbury (802) 751-0110

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